

last-visit versions, whilst other items should be scored individually. The last-visit version discriminates treatment response.

#### PRM138

##### INCREMENTAL QUALITY ADJUSTED LIFE YEARS (QALY) ANALYSIS IN ABSENCE OF HEAD TO HEAD AND HEALTH RELATED QUALITY OF LIFE (HRQOL) DATA: A CASE STUDY IN THYROID CANCER

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**OBJECTIVES:** In recent years, the healthcare industry has witnessed a trend for regulatory approvals of innovative technologies in oncology without head-to-head clinical trial evidence or Health Related Quality-of-Life (HRQoL) data. This yields a challenge to decision-makers who require a cost-effectiveness analysis (CEA) to conduct Health Technology Assessments. To demonstrate methodological approaches and potential data sources to address these gaps, we present a case study using recently approved drugs lenvatinib and sorafenib for management of radioiodine-refractory differentiated thyroid cancer (RR-DTC). **METHODS:** A vignette study was conducted to elicit utilities for RR-DTC health-states and estimate the impact of toxicities on HRQoL. Phase III clinical trial data with crossover correction were used to compare clinical-endpoints of Progression Free Survival (PFS) and Overall Survival (OS) for both lenvatinib and sorafenib. Adjustments for study population differences were addressed using Matching-Adjusted Indirect Comparison. PFS and OS data were extrapolated to 10 years using proportional hazard, accelerated time failure, individual parametric models and piecewise models and time in health states was estimated from the partitioning of survival time into pre- and post-progression. **RESULTS:** Adjusted HRs for lenvatinib vs. sorafenib were estimated as 0.37(95%CI: 0.25-0.55) for PFS and 0.79(0.45-1.37) for OS. PFS (stable) health-state utilities for each drug were adjusted using tumor response rates and incremental utility gain. Combining phase III toxicity rates with utility decrements yielded a total disutility of 0.042 for lenvatinib vs. 0.117 for sorafenib. Survival extrapolation (undiscounted) provided estimates of incremental 0.66 LYs and 0.60 QALY for lenvatinib vs. sorafenib. **CONCLUSIONS:** This analysis demonstrated that in absence of head-to-head trials and QoL trial data, vignette utility studies and ITC may be used to aid with QALY analysis, especially in orphan diseases where limited data are available. Vignette studies and ITC can increase reliability of comparative-effectiveness data and support payers' decision making.

#### PRM139

##### RECOMMENDATIONS FOR ANALYSIS OF PATIENT REPORTED OUTCOMES (PRO) EFFICACY DATA WHEN EVALUATING TREATMENT BENEFIT

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**OBJECTIVES:** Lack of rigour in PRO data analysis leads to uncertainty around the quality of results impacting the extent to which conclusions can be drawn from the data. This study sought to provide guidelines for PRO efficacy data analysis for study sponsors in order to ensure confidence in PRO results by stakeholder decision makers. **METHODS:** A targeted review was undertaken of guidelines for clinical trial and PRO data analysis, and published PRO analysis studies that demonstrated good practice in PRO efficacy analysis. The evidence was synthesised by a team comprising statistical and PRO experts experienced in the analysis of PRO efficacy data. An 8-step guideline was developed based on the available evidence. **RESULTS:** Eight steps that will ensure high quality analysis of PRO trial efficacy data are (1) avoid unplanned or post analysis by developing a PRO specific SAP prior to data base lock, or document comprehensive PRO data analysis in the clinical trial SAP (2) ensure awareness of differing requirements across stakeholders in PRO data analysis/interpretation and adequately address this in the SAP to ensure (3) specify primary and secondary PRO endpoints and/or approaches to correcting for multiplicity (4) develop and specify appropriate approaches to handling missing data including sensitivity analysis (5) include analysis of PRO score change from baseline (6) specify approaches to interpreting change from baseline data including any benchmarks which will be applied during interpretation (7) implement a 100% double programming approach alongside table review by statistically qualified team members (8) interpret PRO results not only in isolation but alongside other clinical outcomes **CONCLUSIONS:** For PRO data to effectively inform decision making across all stakeholders, high standards of data analysis needs to be mandatory. This 8-step guideline, if adhered to, will raise the standard of PRO data analysis reducing the likelihood that PRO data is discounted by decision makers.

#### PRM140

##### MAPPING THE BECK DEPRESSION INVENTORY TO THE EQ-5D-3L IN PATIENTS WITH DEPRESSIVE DISORDERS

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**OBJECTIVES:** For cost-utility analyses, data on health state utilities, as provided by the EQ-5D-3L, is needed but not always available. This study specifies a mapping algorithm from the Beck Depression Inventory (BDI) index to the EQ-5D-3L index adjusted for specific socio-demographic variables for patients with depressive disorders. **METHODS:** A sample of 1,074 consecutive patients with depressive disorders from a psychotherapeutic outpatient clinic was included in the study. Standardized clinical interviews were applied to establish reliable diagnoses. For the prediction of the EQ-5D-3L index from the BDI index and selected patient socio-demographic characteristics, ordinary least squares regression with robust standard errors was used. Model prediction properties were tested using the root mean squared error and repeated random sub-sampling cross-validation. **RESULTS:** The BDI index predicted the EQ-5D-3L index with a significant proportion of variance explained. The highest model goodness of fit was estimated for models with the BDI index and age as independent variables. The root mean squared error of the predicted EQ-5D-3L index in the validation samples ranged from 0.225 to 0.228 between the

models. **CONCLUSIONS:** The specified mapping algorithms from the BDI index to the EQ-5D-3L index for patients with depressive disorders are acceptable for usage as approximation in cost-utility analyses. A further validation in independent samples is necessary to obtain more confidence in their performance.

#### PRM141

##### ISSUES AFFECTING QUALITY OF LIFE AND DISEASE BURDEN IN LIPOPROTEIN LIPASE DEFICIENCY (LPLD) – FIRST STEP TOWARDS A PRO MEASURE IN LPLD

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**OBJECTIVES:** LPLD is an ultra-orphan genetic lipid disorder (prevalence 1-2/million). It is associated with severe hypertriglyceridemia and an increased risk of acute pancreatitis. Other manifestations include eruptive xanthoma, fatigue, difficulty with concentrating and cardiopulmonary symptoms. Associated symptoms, complications and the fat-restricted diet affect Quality of Life (QoL). Currently no disease-specific measure exists to assess QoL and the burden of LPLD. As part of post approval commitments of alipogene tiparvovec, regulatory bodies requested the development of a reliable measure of QoL in LPLD. This study evaluates existing EORTC questionnaires QLQ-C30 and QLQ-PAN26, and a new questionnaire of disease burden devised by clinicians with experience in treating LPLD. **METHODS:** To date, eight genetically confirmed LPLD-patients from four countries assessed the relevance and importance of each item of the three questionnaires. Patients' ratings were discussed during an in-depth, face-to-face interview and the disease burden questionnaire was comprehensively discussed, analyzed and then modified where necessary. **RESULTS:** Quantitative assessment showed that 25 (45%) of the QLQ-C30 and QLQ-PAN26 questions were relevant to the majority of patients. The most relevant items were pain (6), fatigue and sleeping problems (4), digestive and dietary factors (4), work, daily and social activity restrictions (4) and impact on emotional functioning (3). Qualitative and quantitative analysis of the new questionnaire highlighted the unpredictability of pancreatitis attacks and the impact of the strict low fat diet on social and emotional factors. Less common clinical manifestations of LPLD (xanthoma, dyspnea) were very important to those affected. The new questionnaire has been modified and items on alcohol use and painkillers added for ongoing evaluation. **CONCLUSIONS:** Five QoL domains relevant to LPLD have been identified using existing questionnaires. A new disease-specific questionnaire identifies significant impacts on patients' lives. These instruments may help clinicians to effectively use pharmacological and genetic therapy to manage LPLD patients.

#### PRM142

##### INTERNAL STRUCTURE OF THE MINNESOTA LIVING WITH HEART FAILURE QUESTIONNAIRE

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**OBJECTIVES:** The Minnesota Living with Heart Failure Questionnaire (MLHFQ) is one of the most widely used health-related quality of life (HRQoL) specific questionnaires for patients with heart failure (HF). It provides two dimensions (physical and emotional) and a global score. However, there are some concerns about its factor structure, and different alternatives have been proposed, including even a third factor representing a social dimension. The objective of the present study was to study the internal structure of the MLHFQ, the unidimensionality of the total score, and to compare the different factor structures raised. **METHODS:** We included 2565 patients hospitalized for HF, who were provided with the MLHFQ during hospitalization. The structural validity of the questionnaire was studied by confirmatory factor analysis (CFA) for categorical data, and the Rasch rating scale model. These two approaches were also applied to the different structures proposed. **RESULTS:** The results of the CFA for the hypothesized model of two latent factors and the Rasch analysis confirmed the adequacy of the physical and emotional dimensions. We only found two problematic items within the total score. The results of the CFA applied to other two-factor structures proposed were not better than the results of the original structure. The Rasch analysis applied to the different social factors showed the best results for Munyombwe's social dimension. **CONCLUSIONS:** The results support the validity of using the MLHFQ physical and emotional subscales in patients with HF, as well as the total score. In addition, the results confirmed the existence of a third social factor, and we recommend the use of Munyombwe's social factor.

#### PRM143

##### IMPROVEMENTS IN PATIENT-REPORTED OUTCOMES FOLLOWING 52 WEEKS OF TREATMENT WITH CERTOLIZUMAB PEGOL IN COMBINATION WITH METHOTREXATE IN DMARD-NAIVE PATIENTS WITH SEVERE, ACTIVE AND PROGRESSIVE RHEUMATOID ARTHRITIS: RESULTS FROM THE C-EARLY RANDOMIZED, DOUBLE-BLIND, CONTROLLED PHASE 3 STUDY

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